USSR

GOLDAYEV, I. P., et al., Poroshkovaya Metallurgiya, No 2, Feb 71, pp 9-13

be continually varied between 500 and 1500°K and 700 and 1250 m/sec velocity. Several types of nozzle apparatus are diagrammed. The new gas generator and total system for production of metal powder are claimed to improve spraying conditions, improve particle formation conditions, decrease air consumption,and allow the chemical composition of the powder to be altered by performing spraying in a reducing, neutral or oxidizing medium.

2/2

USSR UDC: 51:330.115

IVANOV, V. V., MATRYASHYN, M. P., MOTORNYY, L. T.

"On a Procedure for Setting up a Production Program for Enterprises With Small-Series or One-of-a-Kind Production"

Visnyk Kharkiv. un-tu (Khar'kov University Herald), 1971, No 61, Ekonomika (Economics), vyp. 6, pp 26-37 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V532)

Translation: A whole-number programming problem is set up. As a method of solution, the authors propose that the linearized problem be solved with subsequent rounding-off.

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USSR

UDC: 681.327.67

MOTOROV, N. G., OSIPOVA, M. M., RAKOV, M. A., TUZOV, V. M., Physicomechanical Institute, Academy of Sciences of the Ukrainian SSR

"A Multistable Pulse-Width Element for the Superhigh-Frequency Range"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, 1970, p 32, Patent No 260282, filed 30 Oct 68

Abstract: This Author's Certificate introduces a multistable pulse-width element for the superhigh-frequency range. The unit contains a self-oscillator and a phase detector. As a distinguishing feature of the patent, speed is increased and reliability is improved by connecting the phasing input of the self-oscillator to the reference voltage source through a frequency multiplier, and putting a resonance switch between the self-oscillator and detector. The output of the phase detector and the reference voltage source are connected through a summing circuit to the controlling input of the resonance switch.

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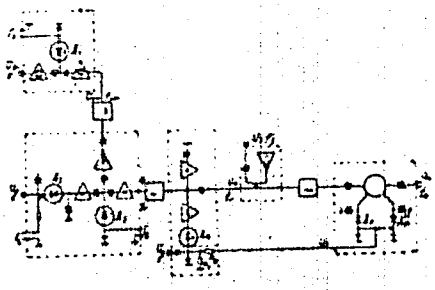
USSR

MOTOROV, N. G., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, 1970, p 32, Patent No 260282, filed 30 Oct 68



USSR

UDC: 621.319.4-416

VOROB'YEV, C. A., MOTOSHKIN, V. V., MUKHACHEV, V. A., MUKHACHEVA, N. S.

"On the Mechanism of Breakdown of Thin-Film Capacitors at High Frequencies"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 210-211

Abstract: A preliminary investigation is made of the frequency dependence of the electric strength of thin-film capacitors. It is found that the breakdown voltage of thin-film capacitors remains constant up to a frequency of about 600 kHz. At higher frequencies, the puncture voltage drops sharply. The loss tangent decreases with increase in frequency in the 1-100 kHz. range.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COMPARISON OF METHODS FOR SEPARATING AND DETERMINING FLUORINE IN THE PRESENCE OF ZIRCONIUM -U-

AUTHOR-(02)-GOONEVA, M.M., MOTOV, D.L.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 151-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FLUORINE, ZIRCONIUM, FLUORIDE, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1881 STEP NO--UR/0032/70/036/002/0151/0154

CIRC ACCESSION NO--AP0118843

UNCLASSIFIED

CIRC ACCESSION NO--AP0118843

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS FOR DECOMPG. F-ZR COMPLEXES IN THE DETN. OF F WERE COMPARED. THE EFFECT OF ZR ON THE DISTN. OF H SUB2 SIF SUB6, AND THE SEPN. OF ZR BY PPTN. WITH NADH WERE STUDIED. ZR(OH)SUB3 F, ZR(OH)SUB4-X F SUBX, AND K SUB2 ZRF SUB6 WERE ANALYZED. STEAM DISTN. OF H SUB2 SIF SUB6 WERE PERFORMED AT 100-140DEGREES AND 220-240DEGREES IN THE PRESENCE OF H SUB2 SO SUB4 AND H SUB3 PO SUB4, RESP., UNTIL THE DISTILLATE WAS FLUORIDE FREE. THE FIRST ZR PPTN. WAS CARRIED OUT AT ROOM TEMP. THE MIXT. WAS ALLOWED TO STAND FOR 1 HR, THE PPT. WAS SEPD. BY FILTRATION AND DISSOLVED IN 5-10PERCENT H SUB2 SO SUB4. THE 2ND PPTN. WAS FROM A HOT SOLN. THE RESULT OF THE DETN. OF F BY TITRN. WITH TH PRIME4 POSITIVE AFTER THE PPTN. OF ZR WAS ENHANCED BY 3-16PERCENT BY ACTION OF SO SUB4 PRIME2 POSITIVE. THE REPEATED ZR PPTN. IS NECESSARY TO AVOID F LOSSES. RESULTS OBTAINED BY THE DISTN. WITH H SUB2 SO SUB4 ARE WORSE THAN WITH H SUB3 PO SUB4 DUE TO BOTH LOW TEMP. AND WEAK BINDING BETWEEN SO SUB4 PRIME2 POSITIVE AND ZR. IN K SUB2 ZRF SUB6 THE DISTN. WITH H SUB3 PO SUB4 COMBINED WITH THE ZR PPTN. YIELDED NEARLY THEORETICAL RESULTS.

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ZIRCONIUM SULFUR TRIOXIDE WATER SYSTEN -U-

AUTHOR-(02)-MOTOV, D.L., RITTER, M.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 789-95

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ZIRCONIUM DIOXIDE, ZIRCONIUM OXIDE, SULFUR TRIOXIDE, WATER, SOLUBILITY, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0452 STEP NO--UR/0078/70/015/003/0789/0795

CIRC ACCESSION NO--AP0126204

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF THE ZRO SUB2 SO SUB3 H SUB2 O SYSTEM WAS DETD. AT 150, 200, 250, AND 300DEGREES AND THE DATA IS TABULATED. SOLY. ISOTHERMS AT 150 AND 200DEGREES ARE CONSTRUCTED. CRYSTN. FIELDS OF ZR SUB2 (OH) SUB2 (SO SUB4) SUB3 4H SUB2 O, 2ZR(SO SUB4) SUB2 3H SUB2 O, 2ZR(SO SUB4) SUB2 H SUB2 O, ZR(SO SUB4) SUB2, AND ZR(SO SUB4) SUB2, H SUB2 SO SUB4 ARE DETD. AND A POLYTHERM IS CONSTRUCTED. FACILITY: INST. KHIM. TEKHNOL. REDK. ELEM., USSR.

UNCLASSIFIED

USSR

UDC: 54.386+661.883-546.226.39+532.785

MOTOV, D.L., and SKABICHEVSKAYA, G.I.

"Isolation of Double Sulfates of Zirconium and Aluminum from Sulfate Thiocyanate Solutions"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 65-68

Abstract: A study was made of the formation double sulfates from sulfate solutions containing, along with the sulfate ions, other anions forming salts with zirconium, for example, thiocyanate. The method amounted to isothermal standing at 20°C of an acidic solution of zirconium thiocyanate containing ammonium sulfate. Change with time in the content of zirconium and thiocyanate ion in the solution was determined. Zirconium and SO_3 were determined by gravimetry as ZrO_2 and $BaSO_4$, and $(NH_4)_2O$ -- by distillation of NH_3 followed by titration with sulfuric acid, and the SCN^-ion -- argentometrically. Compounds not previously described in the literature were found: $4(NH_4)_2SO_4 \cdot Zr_2O(SO_4)_3 \cdot 6H_2O$ and $2(NH_4)_2SO_4 \cdot ZrOSO_4 \cdot 2H_2O$.

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Acc. Nr. AP0034103 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0078

74173x Separation of zirconium-ammonium double sulfates from sulfate–thiocyanate solutions. [redacted] D. L.; Shabichtskaya, G. I. (USSR). *Zh. Neorg. Khim.* 1970, 15(1), 65–8 (Russ). The double salts $4(NH_4)_2SO_4.Zr_2O(SO_4)_2.6H_2O$ and $2(NH_4)_2SO_4.ZrOSO_4.2H_2O$ formed when a soln. contg. ZrO_2, HSCN, and $(NH_4)_2SO_4$ was kept at 20°. Kinetic curves for pptn. of the double-sulfates are given. Addn. of H_2SO_4 to the soln. inhibits sepn. of the double salts. EMTR

18

REEL/FRAME
19710716

USSR

UDC 669.046.5

KUDRIN, V. A., YELANSKIY, G. N., BABICH, V. K., MOTOV, V. I., TYURIN, Ye. I., and DANILIN, V. I

"Technology of Quality Steelmaking in Basic Martin Furnaces Under Contemporary Conditions"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 66-73

Translation of Abstract: Results of investigations on the theoretical development and practical testing of a rational technology for conducting martin steelmaking under contemporary conditions are presented. 6 figures, 23 references.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--OPTIMUM LIMITS OF THE MELT DOWN CARBON CONTENT -U-

AUTHOR-(05)-YELANSKIY, G.N., KUDRIN, V.A., MUTOV, V.I., GUTNOV, R.B., TUNKOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 123-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OPEN HEARTH FURNACE, METAL MELTING, CARBON STEEL, SULFUR, PHOSPHORUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1948 STEP NO--UR/0133/70/030/002/0123/0126

CIRC ACCESSION NO--AP0115756

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202120009-3"

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICAL STUDY, CONFIRMED BY 75 TON EXPTL. OPEN HEARTH HEATS, SHOWED THAT A MELT DOWN C CONTENT GREATLY DIFFERENT FROM ITS CONTENT OF FINISHED STEEL IS EQUALLY HARMFUL FOR ALL TECHNOLOGICAL OPERATIONS, BE IT TOO HIGH OR TOO LOW. AN EXCESSIVE C CONTENT SPECIFIES THE LENGTH OF THE WHOLE BOILING PERIOD, INCREASES ORE CONSUMPTION AND RAISES TAPPING TEMP. WITHOUT AFFECTING THE DECARBURIZATION RATE AND S AND P CONTENT OF FINISHED STEEL. FOR 0.10-0.65PERCENT C STEELS, HEATS HAVE TO MELT WITH A C EXCESS OF 0.35-0.65PERCENT ABOVE THE FINAL.

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202120009-3"

Acc. Nr: AP0051917 Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp35-37

ADRENAL CORTEX ACTIVITY IN OLD AGED PERSONS AND CHANGES OF ITS FUNCTION UNDER THE EFFECT OF CARNOSINE AND VITAMIN B_{15}

S. V. Maksimov, L. P. Motaga and A. I. Laskavaya (Kharkov)

A study of 59 persons (age: 60—87 years) indicates that old aged subjects show a weakened adrenal cortex function, though the reserves of corticoid function to administration of ACTH is preserved.

Use of carnosine exerts a stimulating effect on the functional activity of the adrenal cortex.

Vitamin B_{15} exerts a stimulating effect on the functional activity of the adrenal cortex and also regulates the corticoid activity in old aged persons.

REEL/FRAME
19820400

USSR

UDC 628.312.3:628.445]:543.3

KORSH, L. Ye., Candidate of Medical Sciences, YURASOVA, O. I., Candidate of Medical Sciences, NIKONOVA, A. G., and MOTOVA, M. A., Institute of General and Communal Hygiene imeni A. N. Sysin, Academy of Medical Sciences USSR, Moscow

"Utilization of C^{14} for Rapid Determination of the Number of E. Coli in Water"

Moscow, Gigiyena i Sanitariya, No 9, 1971, pp 78-81

Abstract: In the new method, the concentration of E. coli in water samples is determined by means of a radioactive count of the CO_2 produced by bacteria suspended in a medium containing C^{14}-tagged glucose. The method was tested by adding a known number of bacteria (from 10 to 10,000) to metal containers with radioactive Endo and Rozolov media, incubating the samples at 42°C for 6 hours, removing the $Ba(OH)_2$ saturated filter with which the containers were covered and which absorbed CO_2, and determining the radioactivity of the filters. To correct for background activity, filters placed over sterile media were also measured. The plotted results yielded a linear correlation between bacterial concentration and radioactive counts. The small difference between the two media was due to the fact that CO_2 is less soluble in Endo medium than in Rozolov medium. Then bacterial concentrations in unknown water samples

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USSR

KORSH, L. Ye., et al., Gigiyena i Sanitariya, No 9, 1971, pp 78-81

were determined by the new method and by the standard culture method. The results differed by a factor of 1.5. Microbiological counts are known to vary as much as 200%. The new method is sensitive to within 10 bacteria in the Endo medium and 30-40 bacteria in the Rozolov medium, and the total procedure takes less than 7 hours. The radioactive method is recommended as reliable and convenient.

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USSR

MOTOVILIN, G. V.

"The Problem of Classification Principles for Glues and Glue Compounds"

Moscow, Plasticheskiye Massy, No 10, 1970, pp 3-4

Abstract: A critical review of the paper of RAYEVSKIY, V. G., and PRITYKIN, L. M., "Adhesion, Glues and Glueing. Principles of Classification, Coding, Development of Information Retrieval Language, Terminology", Plasticheskiye Massy, No 2, 1970, p 7, is presented. An issue is taken with the term adhesion as used by above authors, and a new definition is proposed: "Adhesion is a surface phenomenon which results in molecular bond between the surfaces of two adjacent but different bodies or phases". To get an even further characterization of this phenomenon, it should be classified by individual properties: type of bonds, type of contact, state of the bodies, etc. Further, the division of glues into synthetic, resin and natural glues, as proposed in above text, is questioned. Since the properties of various glues depend on their fillers, it is proposed that the division should be along the lines of filled and unfilled glues.

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CSO: 1841-W

USSR

UDC 678.643'42'5.028

MOTOVILIN, G. V., and SHAL'MAN, YU. I.

"Novel Hardener for Epoxy Glues"

Moscow, Plasticheskiye Massy, No 3, 1971, pp 27-29

Abstract: Polyethylenepolyamine (PEPA) consisting of a mixture of amines is widely used as cold hardening glue, however, it shows many undesirable properties. In search for new hardeners, a study was carried out on AF2--a condensate of phenol, formaldehyde and ethylene diamine. AF2 is an aromatic amine with two amine groups--one primary and one secondary. Experiments performed showed that AF2 exhibits high reactivity, it is able to solidify below room temperatures, it does not have to be proportioned accurately, and it is less hydroscopic than PEPA. The increased reactivity of this hardener with epoxy compositions is due probably to the phenolic hydroxyl group. It can be stored in tubes and is satisfactory agent for rapidly hardening epoxy glues.

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1/2 035 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--PROBLEMS OF IMMUNOLOGICAL REACTIVITY IN MENTAL PATIENTS WITH TOXOPLASMOSIS -U-

AUTHOR-(04)-MOTOVKINA, N.S., MIKHALEVA, L.V., KOTKOV, F.I., FRAYND, N.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 5, PP 718-721

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNOLOGY, MENTAL DISORDER, ANTIBODY, TEST, PSYCHOSIS, ENCEPHALITIS, CENTRAL NERVOUS SYSTEM, PARASITIC DISEASE, TOXOPLASMOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1134 STEP NO--UR/0246/70/070/005/0718/0721

CIRC ACCESSION NO--AP0115153

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CONVENED A COMPREHENSIVE STUDY OF IMMUNOLOGICAL CHANGES IN THE ORGANISM OF MENTAL PATIENTS WITH TOXOPLASMOSIS. THE STUDIES WERE RELATED MAINLY WITH THE EXISTENCE OF COMPLETE ANTIBODIES, COMPLEMENT FIXATION TESTS, INCOMPLETE ANTIBODIES IN THE INHIBITIVE REACTIONS OF COMPLEMENT FIXATION AND SENSITIZATION BY A TOXOPLASMOTIC ALLERGEN (INTRACUTANEOS TESTS). 1504 PATIENTS WERE STUDIED. THE HIGHEST PER CENT OF POSITIVE REACTIONS TO TOXOPLASMOSIS WAS SEEN IN OLIGOPHRENIC PATIENTS (73.3PERCENT) AND IN PATIENTS WITH ENCEPHALITIS (67.0PERCENT); THE LOWEST WAS SEEN IN TRAUMATIC PSYCHOSES (26,3PERCENT). THE TOTAL NUMBER (IN ALL DISEASES) WAS 53,5PERCENT. COMPARING THE RESULTS IN GROUPS OF PATIENTS WITH TOXOPLASMOSIS WITHOUT MENTAL DISORDERS AND WITH DIVERSE MENTAL CHANGES IT WAS DISPLAYED THAT INCOMPLETE ANTIBODIES IN THE SECOND GROUP WERE REGISTERED 4 TIMES MORE FREQUENTLY THAN IN THE FIRST. THIS MAY SPEAK OF A MORE PROFOUND AFFECTION OF THE ORGANISM BY INFECTIONS AND AN INVOLVEMENT INTO THE PATHOLOGICAL PROCESS OF THE CNS. THESE CHANGES IN THE REORGANIZATION OF REACTIVITY ARE INTIMATELY CONNECTED WITH THE DURATION OF THE DISEASE. FACILITY: KAFEDRY PSIKHIATRII, KAFEDRA MIKROBIOLOGII VLADIVOSTOK MEDITSINSKOGO INST. AND TOKSOPLAZMOZNAYA LAB. KRAYEVOY SANEPIDSTANTSII.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--FORMATION OF TEREPHTHALIC AND ISOPHTHALIC ACID DICHLORIDES DURING THE REACTION OF 1,4, AND 1,3,BIS(TRICHLOROMETHYL) BENZENES WITH ACETIC

AUTHOR-(03)-USPENSKAYA, I.N., MAKSICHEVA, A.I., MOTSAREV, G.V.

COUNTRY OF INFO--USSR, FRANCE

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1027-32

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACID CATALYSIS, CHEMICAL SYNTHESIS, PHTHALIC ACID, CARBOXYLIC ACID CHLORIDE, ACETIC ACID, BENZENE DERIVATIVE

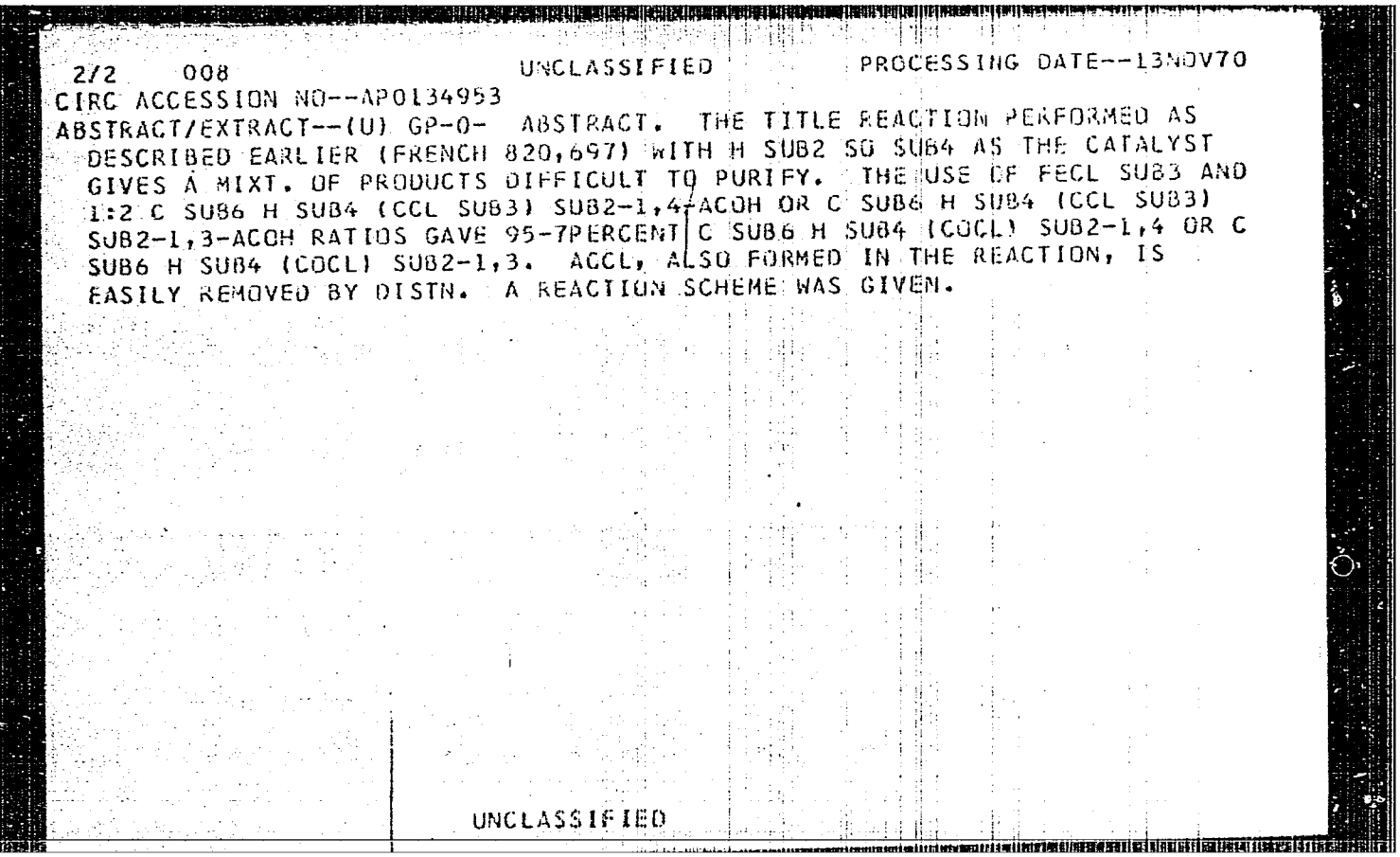
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1279 STEP NO--UR/0366/70/006/005/1027/1032

CIRC ACCESSION NO--AP0134953

UNCLASSIFIED



2/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134953

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION PERFORMED AS DESCRIBED EARLIER (FRENCH 820,697) WITH H SUB2 SO SUB4 AS THE CATALYST GIVES A MIXT. OF PRODUCTS DIFFICULT TO PURIFY. THE USE OF FECL SUB3 AND 1:2 C SUB6 H SUB4 (CCL SUB3) SUB2-1,4-ACOH OR C SUB6 H SUB4 (CCL SUB3) SUB2-1,3-ACOH RATIOS GAVE 95-7PERCENT C SUB6 H SUB4 (COCL) SUB2-1,4 OR C SUB6 H SUB4 (COCL) SUB2-1,3. ACCL, ALSO FORMED IN THE REACTION, IS EASILY REMOVED BY DISTN. A REACTION SCHEME WAS GIVEN.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PREPARATION OF AROMATIC ACID CHLORIDES -U-

AUTHOR-(03)-USPENSKAYA, I.N., MOTSAREV, G.V., BONDAREVA, G.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 328-32

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PRODUCTION, CHLORINATED AROMATIC COMPOUND, BENZENE DERIVATIVE, ACID CHLORIDE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0859 STEP NO--UR/0064/70/046/005/0328/0332

CIRC ACCESSION NO--AP0137887

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202120009-3"

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0137887
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS, INCLUDING INDUSTRIAL ONES BASED ON MONO AND BIS(TRICHLOROMETHYL) BENZENES, FOR PREPF. AROMATIC ACID CHLORIDES ARE REVIEWED.

UNCLASSIFIED

USSR

ZHILINSKAS, A. G., MOTSKUS, I. B., TIMOFEYEV, L. L.

"Bayes Method of Seeking Extreme with Limited Memory"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 6, pp 37-42 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V307, by the authors).

Translation: Assuming that the function to be optimized is a realization of a Gaussian homogeneous isotropic field, a Bayes method is studied for seeking the minimum with memory limited to two experimental results.

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USSR UDC 62-506:519.83

ZhILINSKAS, A. G., MOTsKUS, I. B., and TIMOFEYeV, L.L.

"A Bayesian Method for Seeking an Extremum with Limited Memory"

Riga, Avtomatika i Vychislitel'naya Tekhnika, No. 6, 72, pp 37-42

Abstract: The problem is to find the minimum of a real function of many variables, assuming that at any step t in the solution only two previous results $(f(x_i),x_i)$ $(i=\overline{1,t})$ can be stored. The T-step method of searching for δ is described by rules for planning δ_t^1 $(t=\overline{1,T+1})$ and recording δ_t^2 $(t=\overline{2,T})$. The rule for storing results in this method cannot be expressed with the analytical simplicity possible in the case of a Bayesian method of search in which the memory is limited to one result, as is described by Zhilinskas and Motskus in No. 4 of this journal for 1972. In some cases, it may be expedient simply to postulate simple storage rules and find only the optimum rules of planning. Two quasi-optimal storage rules are suggested.

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USSR UDC 621.791.75.045-52+621.791.046

IVOCHKIN, I.I., ALEKSEYEV, A.I. (Candidates of Techn. Sciences) / VNIImontazhspetsstroy /, LEBEDEV, B.F. (Doctor of Techn. Sciences) / Institute of Electric Welding imeni Ye.O. Paton /, STEKLOV, O.I. (Cand. of Techn. Sciences) / Moscow Higher Technical School imeni N.E. Bauman /, IVOCHKIN, I.M. (Engineer) / Sokolovskiy Plant of Erecting Cranes / and MOTSOKHIN, S.B. (Engineer) / Trust No 7 /

"Automatic Submerged Arc Welding Using Powder Filler Metal"

Moscow, Svarochnoye proizvodstvo, No 2, Feb 72, pp 15-17

Abstract: The use of powder filler metal in submerged arc welding permits joining plate structures up to 50 mm thick without bevelling in two passes at a lower per-unit consumption of heat energy. Described here is a new analytical technique for determining the

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IVOCHKIN,I.I.,et al, Svarochnoye proizvodstvo, No 2,Feb 72,pp 15-17

optimal technological parameters of welding with the use of powder filler metal including the root gap, welding rate, electrode wire feed, granulation,and the amount of powder filler metal. The weld quality is rated on the basis of fusion depth, shape factor, weld continuity,and the heat efficiency of the welding. Proposed is a new automatic direct submerged (two-sided) welding technology with metal powder as the filler metal for low carbon and low-alloy steels up to 50 mm thick without bevelling. The new process is said to increase the welding efficiency two to three fold (as compared to conventional welding),decrease the cost per meter of weld by about 80%,and produce an economic effect within the 10-50 mm thickness range averaging at 330 rubles per ton. (3 illust., 3 tables, 4 biblio. ref.)

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USSR

UDC: 537.312.62

GOLOVASHKIN, A. I., LEVCHENKO, I. S., MOTULEVICH, G. P.

"Electronic Characteristics of Sputtered Alloys of Indium With Gallium"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 20-29 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D538 [résumé])

Translation: A new method is developed for making superconductive vanadium--gallium compounds with high critical parameters -- transition temperature T_c and current density j_c -- which are practically independent of the alloy composition over a wide range of concentrations. The following electronic characteristics of the resultant alloys are measured by the optical method: conduction electron concentration, total area of the Fermi surface, average velocity of electrons on the Fermi surface, effective frequency of electron collisions, the Fourier components of the pseudopotential. A certain correlation is established between T_c on the one hand and the conduction electron concentration and frequency of electron-phonon collisions on the other hand. Six illustrations, one table, bibliography of sixteen titles.

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USSR UDC: 535.321:535.341

DUYSEBAYEVA, Zh., KORSUNSKIY, M. I., MOTULEVICH, G. P.

"Optical Properties of Palladium"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 535-538

Abstract: The optical constants n and κ ($n - i\kappa$ is the complex index of refraction) of palladium were measured at room temperature in the spectral region from 1 to 9 μm. The specimen was a sheet of electropolished palladium of 99.99% purity measuring 80 x 18 x 3 mm. A layer of about 50 μm was removed by micropolishing to provide a clean surface layer free from work hardening. Ten series of measurements were made. The following characteristics of conduction electrons were calculated from the measured values of n and κ in the region of 4-9 μm: concentration N, effective collision frequency ν, and average velocity on the Fermi surface v_F. The interband luminous conductivity σ_b and interband permittivity ε_b were determined from the measured values of n and κ in the region of 1-3.5 μm. A complex conduction band is found which consists of two bands whose parameters are given. The authors thank A. A. Shubin who provided the equipment for measuring optical constants, and I. D. Mash for her assistance with the work.
1/1

UDC 669-405:[537+535]

USSR

MOTULEVICH, G. P.

"Optical Properties of Nontransition Metals"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences USSR), 1971, 55, pp 3-150 (from RZh-Fizika, No 2, Feb 72, Abstract No 2E1782)

Translation: The dissertation presents new methods for measuring the optical constants n and $\chi(n-i\chi$ is the complex refractive index) with the necessary accuracy in the IR region of the spectrum. Questions of the relation of the optical properties of metals to their principal microcharacteristics are considered on a theoretical level. A detailed experimental study is made of the optical properties of polyvalent nontransition metals, especially In, Al, Pb, and Sn.

1/1

USSR

UDC 535.393

GOLOVASHKIN, A. I., MOTULEVICH, G. P., and SHUBIN, A. A.

"Optical Properties and Electron Characteristics of Metals"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 4, Jul-Aug 71, pp 35-41

Abstract: This article was presented at the Second Republic Conference on Questions of General and Applied Physics held in October 1969 at Alma-Ata. The authors find that the electron characteristics obtained by the optical method, mainly the Fourier components of the pseudopotential, define both the zone structure and other properties that depend on the electron interaction. They are thus able to use the values obtained in this article for interpretation of other data. They compare the characteristics revealed by the optical method and those determined using the van Alphen-de Haas effect, the anomalous skin effect, absorption of ultrasound in a magnetic field, and study of the intensity of x-ray diffraction maxima as a function of temperature and find a good agreement. On the whole the experiment confirms the metallo-optical phenomena developed in the article and indicates great potentiality for metallo-optics that will permit obtaining significant information on the electron properties of metals. The article contains 2 figures, 1 table, and a bibliography of 5 entries.
1/1

UDC: 539.2.01

USSR

GOLOVASHKIN, A. I., MOTULEVICH, G. P.

"Determination of Fourier Components of Pseudopotential by Optical Method"

Kratk. Soobshcheniya Po Fiz [Brief Reports on Physics], No. 2, 1970, pp 69-76, (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract No. 8YE295, by G. L. Krasko).

Translation: A procedure for determination of the values of Fourier components V_g of pseudopotentials of nontransition metals in the first few nodes of the inverse lattice by an optical method is briefly described. A table of values of V_g is presented for Pb, Sn, In, Al, Zn, and Nb, taken from earlier works of the authors. Values of V_g produced by other methods (the de Gaas-van Alphen effect, size effect, cyclotron resonance, etc.) are also presented for comparison.

1/1

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 041

TITLE--OPTICAL PROPERTIES OF SUPERCONDUCTING NIOBIUM AND TITANIUM ALLOYS -U-

AUTHOR-(05)-LEKSINA, I.YE., MOTULEVICH, G.P., SHUBIN, A.A., BARANOV, I.A., SYTNIKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 97-107

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SUBJECT AREAS--MATERIALS

TOPIC TAGS--SUPERCONDUCTING ALLOY, NIOBIUM ALLOY, TITANIUM ALLOY, PHOTON, OPTIC CONSTANT, LIQUID NITROGEN, SUPERCONDUCTIVITY

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2/2 041 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTICAL CONSTS. N AND X WERE MEASURE AT 1-10 MU FOR NB-TI ALLOY BETA-SOLNS., CONTG. 25, 40, 52, 70, AND 85 AT. PERCENT NB. STATIC COND., RESISTANCE AT ROOM AND LIQ. N TEMP., RESIDUAL RESISTANCE CRIT. TEMP. (T SUBC) FOR TRANSITION TO THE SUPERCONDUCTING STATE, AND D. WERE DETD. ALSO FOR THESE SOLNS. THE DATA WERE USED TO CALC. BASIC CHARACTERISTICS OF COND. ELECTRONS OF THE ALLOYS. THE STUDY REVEALS THAT, IN NB, S AND D SHELL ELECTRONS INTERACT FORMING A UNIFORM COND. BAND. THIS IS MORE PRONOUNCED IN ALLOYS HAVING A HIGHER VALUE OF EFFECTIVE FREQUENCIES (V) OF ELECTRON COLLISIONS THAN THAT OF NB METAL. A CORRELATION BETWEEN N (CONC. OF COND. ELECTRONS.) AND T SUBC AND V OF ELECTRON COLLISION WITH PHOTONS IS GIVEN.

UNCLASSIFIED

USSR

UDC 669.293:537.312.62

LEKSINA, I. YE., MOTULEVICH, G. P., SHUBIN, A. A., BARANOV, I. A. SYTNIKOV, V. A., and SHMULEVICH, R. S., Physics Institute imeni P. N. Lebedev

"Optical Properties of Superconducting Nb-Ti Alloys"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 97-107

Abstract: An experimental investigation of the optical properties of superconducting Nb-Ti alloys is reported. The samples were prepared from electron-beam-melted niobium (99.9) and titanium iodide; the experimental and measuring techniques are described. Optical constants n and kappa (H) of electrolytically polished cubic Nb-Ti beta-solutions with atomic Nb concentrations of 25,40,52,70, and 85 were measured in the 1-10 micron special range at room temperature. The same samples were used for determining the density ρ, the static conductance σ_{st}, the resistance R at room and nitrogen temperatures, the residual resistance R_{ost}, and the transition temperature T_s into the superconducting state. The values of basic characteristics of conduction electrons of the tested alloys (electron concentration N, mean velocity v_f on the Fermi level, total area of Fermi level S_f, effective collision frequency ν, collision

1/2

USSR

LEKSINA, I. YE., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 97-107

frequency of electrons with phonons ν_{ep} and with impurities ν_{ed}) were determined on the basis of experimental data. The possibility is shown of obtaining N, ν, v_F and others from n and μ with the aid of normal skin-effect formulas, taking into account the nature of the relationship between the electron characteristics and the optical properties of alloys. An analysis of the results shows that: 1) the values of N are close to those of pure niobium, and only in 25% atomic Nb are these values somewhat smaller; 2) the effective collision frequency of electrons ν in alloys is $\sim 10^{15}$ sec^{-1}, while the collision frequency of electrons with phonons ν_{ep} in alloys is close to that of pure niobium. Thus, the large ν values are related to large ν_{ed} values, which in alloys are two order higher than ν_{ed} of pure niobium; and 3) an anomalous dispersion $\varepsilon(\omega)$ was observed in the long-wave region in all alloys. This indicates the existence of interphase transitions with the resonance frequency in the range of $h\omega = 0.15$ - 0.20 ev for 25-70 at% Nb alloy and in the range of $h\omega \leq 0.15$ ev for 85 at% Nb alloy. The possibility of the correct determination of electron characteristics of Nb-Ti alloys from measurements of their optical constants is pointed out. The dependence of the transition temperature Ts on N and ν_{ep} is presented in graphs. Orig. art. has: 7 figures, 10 formulas, and 3 tables.

2/2

USSR

3

YERMAKOV, A. L., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 114-123

disturbances of the external stream into the shear zone. The high flow stability in shear layers forced aside by injection is explained by the stabilizing influence of the elastic gaseous medium over which they develop. Nine figures, eight references.

USSR

3

UDC 533.601.34

YERMAKOV, A. L., YEROSHENKO, V. M., KLIMOV, A. A., MOTULEVICH, V. P., and TERENT'YEV, Yu. N.

"Experimental Investigation of Flow Stability During Intensive Injection"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 114-123

Abstract: Results are presented of an experimental investigation of the loss of flow stability in boundary layers forced aside by injection. The experi[illegible] theory and opinion concerning the strong destabilizing influence of injection. Moreover, a flow-stabilization effect is noted when injection intensity is increased; this effect originates due to a decrease in the value of velocity shear in the zone of intensive viscous interaction. A semiempirical formula is obtained for determining the critical Reynolds number at the point of loss of stability. Consideration is given to the development of disturbances, and a correspondence is shown between the experimental data and calculations by the method of small vibrations for an ideal fluid. An analysis is made of the transition to turbulence through stability loss due to the selective intensification of small vibrations and, simultaneously, to the penetration of turbulent

1/2

USSR

UDC: 532.526

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P., TERENT'YEV, Yu. N.

"Influence of Strong Injection on Stability of Flow and Transition to Turbulent Flow"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat Physical Properties and Gas Dynamics of High Temperature Media -- Collection of Works], Moscow, Nauka Press, 1972, pp 56-64 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B782, by the authors)

Translation: Some general conclusions from the theory of stability using the method of small oscillations are studied. The use of the interferometric method for visualization of the area of loss of stability and the transition to the turbulent mode is analyzed. The data of interference measurements are used to determine such parameters as wavelength, frequency of development and phase velocity of a periodically excited motion. Quantitative data are presented on the dependence of the point of loss of stability and critical Reynolds number on injection parameter. It is established that with a given range of injection parameter, the flow is stabilized. The dependence of the wave number of an unstable periodic excited motion on critical Reynolds number and injection parameter is analyzed. The flow mode when the transition

USSR

Yeroshenko, V. M., Yermakov, A. L., Klimov, A. A., Motulevich, V. P., Terent'yev, Yu. N., Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred., Moscow, Nauka Press, 1972, pp 56-64.

to the turbulent mode is realized through a loss of stability due to reinforcement of small oscillations and the Taylor mechanism related to penetration of the turbulence of the external flow into the mixing zone is studied.

MOTULOVICH, V.P.

MOTULOVICH, V. P. ARMY/FSTC /HT-23-1496-72

DEPARTMENT OF THE ARMY
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Date: 1 March 1973

ENGLISH TITLE: Convective Heat Transfer in the Presence of Heterogeneous Catalytic Reactions

SOURCE: "Nauka i Tekhnika" Minsk 1968 pp. 149-158

AUTHOR: Motulovich, V. P.

LANGUAGE: Russian

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COUNTRY: Russia

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USSR

UDC 532.526.4

YERMAKOV, A. L., YEROSHENKO, V. M., KLIMOV, A. A., MOTULEVICH, V. P., and TERENT'EV, Yu. N.

"Experimental Investigation of the Structure of a Turbulent Boundary Layer During the Injection of Helium"

Moscow, Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 60-67

Abstract: The method for protecting the surfaces of various structure elements, based upon the transverse delivery of a substance into the boundary layer, is popular in view of its great effectiveness. In some applications, it becomes necessary to decrease heat fluxes to the surface by a factor of several multiples of 10, and to force the mainstream away from the wall to such an extent that its concentration on the surface be negligibly small. This is realized by means of strong injection. Considerable results have recently been obtained with the use of numerical methods for calculating the interaction of a laminar stream of gas with a body during the intensive delivery of a mass from the surface. Comparison of the results of numerical calculation yields good with experimental values.

USSR

YERMAKOV, A. L., et al., Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 60-67

The present work represents a continuation of experimental research on the structure of a turbulent boundary layer during injection through a porous plate. The results of an experimental investigation of the structure of a turbulent boundary layer on a porous plate during the injection of helium are presented. The influence of the injection parameter upon the averaged and pulsation distribution of velocities and concentrations in the layer is analyzed. The sequence of the process of forcing the mainstream away is described, and the displacement parameter is given. 7 figures. 9 references.

2/2

USSR UDC: 536.24+662.612.32

MOTULEVICH, V. P., VORONTSOV, Yu. N., YEROSHENKO, V. M., Moscow

"Combustion of Carbon Particles in a Supersonic Flow of a Chemically Active Gas"

Novosibirsk, Fizika Goreniya i Vzryva, No 3, 1971, pp 345-352

Abstract: There is great interest in problems of heat and mass transfer with heterogeneous physical and chemical processes, arising in various areas of technology including power engineering, chemical production, rocket construction, etc. In addition to the development of precise methods for solution of the problem, there is reason for further development of approximate methods which, having physical clarity, simplicity of application and convenience of analysis, are frequently sufficiently accurate for practice. This problem is studied in this work using the method of relative correspondence presented in an earlier work.

USSR

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P., TERENT'-YEV, YU. N., Moscow

"Experimental Study of the Effect of Intense Blowing of Various Gases on a Turbulent Boundary Layer"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

Abstract: This article contains the results of an experimental study of the effect of blowing of various gases (air, CO_2) on the turbulent boundary layer of a flat plate. The deformation sequence of the average velocity and concentration distributions of the turbulent boundary layer which occurs on variation of the blowing parameter in a broad range is investigated. The increase in thickness of the laminar sublayer during blowing without turbulization and an increase in the physical thickness of the boundary layer are detected. The experiments were performed on a gas dynamic unit with a Mach-Zender interferometer type IT-14. For the study the blowing parameter $\bar{\rho} = (\rho v)_w/(\rho u)_e$ where w refers to the conditions at the wall and e, to conditions at the edge of the boundary layer. All the experiments were performed under isothermal conditions

USSR

YEROSHENKO, V. M., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

with uniform blowing but in the presence of heat exchange). It is also interesting to note that the concentration profiles in the presence of weak blowing of carbon dioxide gas are also deformed by power laws.

UDC: 8.74

USSR

MOTUZA, A. Yu.

"Algorithms for Selecting Useful Tags for Recognition Systems"

Tr. 1-go Vses. simpoziuma po stat. probl. v tekhn. kibernet. Adaptivn. sistemy (Works of the First All-Union Symposium on Statistical Problems in Technical Cybernetics. Adaptive Systems), Moscow, "Nauka", 1971, pp 143-148 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1080)

Translation: The paper deals with problems of selecting qualitative characteristics for recognition systems in the case where the quality indices of these characteristics are evaluated from samples of the objects to be recognized. A two-stage algorithm is given for selecting an effective system of tags from a given set of systems of these tags. Author's abstract.

1/1

USSR

UDC 632.954

KOTUZINSKIY, N. F., VNIIFINTOKS, All-Union Scientific Research Institute of Hygiene and Toxicology, and SANNIKOV, G. P., Chief of Sector, Northern Scientific Research Institute of Hydrotechnical Engineering and Amelioration

"AN Effective Arboricide"

Moscow, Zashchita Rasteniy, Vol 17, No 6, 1972, p 32

Abstract: 25% granulated phenuron (dibar) was applied as a soil arboricide in the amount of 5- kg active substance per ha to eliminate in a meadow in Leningrad Oblast' growths of alder and willow eith an admixture of birch, aspen, and spruce, Sloping canal banks overgrown with willow, alder, pine, and trees of other species were also treated. As a result of the treatment with phenuron, birch, aspen, and spruce died off to 100%, pine and alder to 98-100%, and willow to 95-100%. Phenuron did not contaminate the water of the canals to a dangerous extent or remain in excessive amounts in the soil after rain fall. However, the content of phenuron in the upper 5 cm layer of the soil during the dry weather before the rains amounted to 50, 28.3, and 8.3 mg/kg on the 1st, 5th, and 10th day after application, respectively. This exceeded the upper permissible limit. It is advisable not to use areas treated with granulated phenuron for the grazing or herding of cattle during the year in which this agent has been applied.

1/1

USSR

UDC: 632.95

MOTUZINSKIY, N. F.

"Some Data on the Behavior of the Arboricide Phenurone in the Soil and Water Under Conditions in the Leningradskaya Oblast"

V sb. Gigiyena primeneniya, toksikol. pestitsidov i klinika otravl. (Pesticides -- Safety Measures in Using, Toxicology, and the Poison Clinic--collection of works), vyp. 9, Kiev, 1971, pp 86-92 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7N646)

Translation: After treating a plot with 25% granulated phenurone in a dose of 50 kg of active agent per hectare, the herbicide was detected on the first day only in the upper (0-5 cm) layer of soil in a concentration of 50 mg/kg. The herbicide subsequently penetrated with rain water into the deep layers of the soil, and within four months it was detected in layers of 0-5, 30-40 and 80-110 cm in quantities of 2%, 1% and 1% respectively of the overall amount in the 0-110 cm layer. In the water in a drainage ditch 1.5-2 m wide and 15-50 cm deep located next to the treated plot, phenurone was found after 1 day, after 10 days, and after four months in quantities of 0.12-0.38, 0.05-0.25 and 0.03-0.15 mg/liter respectively. P. V. Popov.

1/1

UDC 620.018

USSR

SAMSONOV, G. V., BOYKO, P. A., MOTYAZHEV, V. I., BONDARENKO, V. P., and SLEPTSOV, V. M., Kiev

"Solubility and Solid Phase Reaction of Carbides of Transition Metals With Nickel and Copper"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 112-119

Abstract: The solubility and solid phase reactions of carbides of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W with Ni and Cu were investigated by X-ray graphic, X-ray microspectral, and metallographic analytical methods. It was found that the solubility and the width of the diffusion band in reactions of these carbides with nickel increase with the transition of carbides of group IV metals to group VI metals and are practically absent in the case of copper. The results are discussed from the standpoint of a model of a contour localization of valent electrons in atoms of reacting components. It is demonstrated that carbides of transition metals are effective hardeners of copper and less effective hardeners of nickel in dispersion-hardened composite materials.

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USSR

UDC 621.373.421.13:621.372.412

MOSTYAYEV, V. A., KULIKOV, YU. P.

"Tuning Low-Frequency Quartz Resonators by Laser Emission"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Collection), 1970, ser 9, vyp. 2, pp 99-104 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D280)

Translation: This article contains a description of a procedure for frequency tuning of low frequency quartz resonators by laser emission. Experimental data are presented for the magnitude and accuracy of tuning the resonators with circuit, longitudinal and bending oscillations. It is demonstrated that when tuning low-frequency resonators by laser emission no changes in the equivalent resistances and conductances, Q-factor and temperature-frequency characteristics take place. There are seven illustrations and a three-entry bibliography.

1/1

MOTYAZHEV, V.I.

JPRS 59873

23 August 1973

TECHNOLOGY OF PRODUCING NEW MATERIALS

Translation of Russian-language collection: Tekhnologiya Polucheniya Novykh Materialov, 1972, Kiev.

CONTENTS

	PAGE
Emissitivity of Zirconium and Niobium Carbides in the Region of Homogeneity (L.N. Okhremchuk, G. Sh. Upadkhaya)	1
Work Function of Silicon Carbide (L.N. Okhremchuk)	4
Electrical Resistance of Composite Materials (Ye. M. Petrova)	8
Heat Capacity Measurement in Some Ceramic Materials (D.M. Karpinos, V.S. Klimenko)	14
Thermal Conductivity of Reinforced Plastics (D.M. Karpinos, V.S. Klimenko)	18
One Optimum Case of a Method of Axial Thermal Flow for Determining the Coefficient of Thermal Conductivity (V.S. Klimenko, et al.)	21
Study of Sintering Kinetics by Hot Extrusion of Zirconium and Titanium Carbides in the Regions of Their Homogeneity (V. Ya. Naumenko, R. Ya. Petrykina)	25
Hot Pressing Features of Molybdenum Carbide (Yu. I. Rogovoy, M.S. Koval'chenko)	32

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[I - USSR - 1]

Table of Contents (Continued)

Page

Production of Silicon Carbide Parts by Hot Casting Under Pressure (G.V. Trunov) 37

Production of Highly Dispersed Copper-Base Powder Composites Containing Refractory-Metal Carbides (V.T. Motyaznov) 42

Production of Yttrium Subgroup Rare-Earth Metal Dodecaborides (V.V. Odintsov) 48

Sintering Titanium Diboride-Molybdenum Compacts (O.V. Zaverukha) 53

Removal of the Plasticizer From Die-Extruded Hard-Alloy Parts (G. V. Plyushch) 59

Study of Solid-Phase Interaction of Molybdenum and Tungsten Disilicides With Ti and Zr in an Electron-Beam Heater (O.S. Yurchenko) 66

Effect of Alloying Elements on Shift of the Alpha-Beta-Transformation in Titanium and Zirconium (S.M. Braun) 71

Study of Some Properties of Zirconium With Additions of Transition Metals (V.F. Filippov) 75

Rare-Earth Metal Modification of Titanium (V.A. Kashchuk, A.I. Cherkashin) 84

Increasing the Physical and Mechanical Properties of Cermets (P.I. Chaplygin) 88

Effect of Scandium, Yttrium, and Lanthanum Oxides on the Properties of Nickel Ferrite (L.A. Alekseyuk) 95

Interaction of Transition Metal Carbides With Silicon (E.V. Kutysheva) 100

Fractionation of Fine Metallic Powders (A.F. Shapoval) 106

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--HYDROLYSIS OF PHOSPHONOUS AND PHOSPHINOUS ACID ESTERS CONTAINING A PHOSPHORUS HYDROGEN BOND -U-

AUTHOR-(04)-BELSKIY, V.YE., MOTYGULLIN, G.Z., YELISEYENKOV, V.N., RAZPOLOZHENSKIY, N.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 565-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROLYSIS, ORGANIC PHOSPHORUS COMPOUND, ESTER, CHEMICAL BONDING

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UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124566

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING ETP(O)(OR)H, PREPD. CONVENTIONALLY, WERE USED (R SHOWN): MEETCH, B SUB12 80-1DEGREES, D PRIME20 0.9865, N PRIME20 SUBD 1.4274; CL CH SUB2 CH SUB2, B SUB0.2 65-6DEGREES, 1.2183, 1.4578; AND ME SUB3C, B SUB0.1 35DEGREES 0.9977, 1.4328. THE LAST WAS RATHER UNSTABLE AND DECOMPD. ON STORAGE, EVEN IN A SEALED BULB, WITH LOSS OF ME SUB2C:CH SUB2. THE FOLLOWING VALUES OF AQ. HYDROLYSIS RATE CONSTS. (K TIMES 10 PRIME6 SEC PRIME1 NEGATIVE) (AT 98, 90, 80, AND 70DEGREES, RESP.), ACTIVATION ENERGY (KCAL-MOLE) AND DELTA S PRIME PLUS OR MINUS (E.U.) WERE REPORTED, RESP., FOR. SHOWN ON MICROFICHE. RATE CONSTS. FOR ALK. HYDROLYSIS FOR THE TERT BU ESTER WERE: (K NA 1 MOLE SEC.) ODEGREES 0.045, 10DEGREES, 0.102, 20DEGREES 0.19, 30DEGREES 0.35, ACTIVATION ENERGY 11.2 AND DELTA S 25 E.U. ALTHOUGH GENERALLY THE AQ. HYDROLYSIS RATE CONSTS. DECREASED WITH INCREASING CHAIN LENGTH AND BRANCHING, THE ESTERS WITH MEETCH AND ME SUB3 C GROUPS WERE GREATLY REACTIVE, OWING TO AN SN 1 MECHANISTIC CHANGE IN THE MECHANISM AT THE C ATOM OF THE ALC. GROUP. FOR OTHER ESTERS CLEAVAGE AT THE P O LINK IS LIKELY, AS IN DIALKYL PHOSPHITES.

FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC: 542.938-661.718.1

BEL'SKIY, V.YE., MOTYGULLIN, G.Z., YELISEYENKOV, V.N., RIZPOLOZHENSKIY, N.I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Hydrolysis of Phosphorus Acid Esters Which Contain the P-H Bond"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Khimicheskaya, No 3, Mar 70, pp 565-568

Abstract: Continuing their investigation of the kinetics of hydrolysis of phosphorus acid esters containing the P-H bond, the authors studied hydrolysis of a number of alkyl esters of ethylphosphinous acid of the general formula $(RO)C_2H_5P(O)H$ in water at different temperatures. It was found that the rate constants for hydrolysis decrease with an increase in length and branching of the alkyl radicals. Exceptions to this rule are sec.- and tert.-butyl esters which have a higher rate of hydrolysis due to S_N1 splittering at the carbon atom in the alcohol group. It is probable that the P-O bond is broken in the other esters by a mechanism analogous to that observed in dialkylphosphites.

1/1

USSR

UDC 633.11"324":632.4(477)

ZELENSKIY, Prof. M. A., GUBERNATOR, F. F., Candidate of Agricultural Sciences, and MOVA, N. S., Agronomist

"Evaluation of Types of Winter Wheat With Respect to Resistance to Powdery Mildew"

Moscow, Selektsiya i Seminovodstvo, Vol 36, No 6, Nov/Dec 71, pp 33-34

Abstract: Winter wheat in the Ukraine is damaged by powdery mildew to a considerable extent. The principal reason is planting of varieties that are not resistant to this disease. The Chair of Selection and Seed Growing, Ukrainian Academy of Agriculture, conducted field tests in which the resistance of 150 varieties of winter wheat to powdery mildew was determined. Methods recommended by the State Commission for the Testing of Varieties of Agricultural Crops were applied to evaluating the resistance of the varieties tested. The number of pustules on various parts of the plants, the yield, and the fullness of the grain were used as criteria in evaluating resistance. Twelve varieties were found to be highly resistant. Among them were varieties selected in the USSR, including Mironovskaya 808 and Rannyaya 12, local varieties from Latvia and L'vovskaya Oblast', and varieties introduced from foreign countries in which the disease occurs frequently (Korea, France, Italy, etc.). Varieties

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USSR

ZELENSKIY, M. A., et al., Selektsiya i Seminovodstvo, Vol 36, No 6, Nov/Dec 71, pp 33-34

that were promising with respect to immunity to powdery mildew resulted from hybridization. Good results were obtained by repeated crossing of highly immune hybrids with cold-resistant varieties of the forest-steppe ecological type. It was established that in repeated crossing the best results with respect to development of resistant varieties were obtained by using a pollen recipient (maternal variety) that was more resistant to powdery mildew than the pollen donor (paternal variety).

2/2

USSR UDC 519.2

MOVA, V. V., PONOMARENKO, L. A.

"Control of a Queueing System with a Finite Queue"

V sb. Prom. kibernetika (Industrial Cybernetics--collection of works), Kiev, 1971, pp 328-338 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V66)

No abstract

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USSR

MOVA, V. V.

"Algorithmization of the Construction of Aircraft Turn-around Schedules"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 213-220 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V543)

No abstract

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USSR UDC: 681.326.35

RZHAVSKIY, V. A., MOVCHAN, A. P., LEDVIN, Ye. K.

"A Pneumatic Pulser"

USSR Author's Certificate No 251918, filed 29 May 68, published 12 Feb 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A69 P)

Translation: This Author's Certificate introduces a pneumatic pulser. The device contains two three-diaphragm relays, the first of them connected in an OR circuit, while the second is connected in an AND circuit. The device also contains a follower with displacement, a choke-capacitance link, a comparison element, and a valve. The units of the device are interconnected in a special way which improves the characteristics of the device in comparison with conventional pulsers. When an input command signal is received, the device produces a pulse of a definite length at the output. One illustration. N. S.

1/1

USSR

UDC 620.193.5

MOVCHAN, B. A., KUZ'MIN, G. S., MOCHALOVA, T. F., KARATYSH, V. V., TIKHONOVSKIY, A. L., and YAGUPOL'SKAYA, L. N., Academy of Sciences Ukrainian SSR, Institute of Electric Welding imeni Ye. O. Paton, Perm' Polytechnical Institute

"Corrosion of Nickel of Varying Purity in Gaseous Hydrogen Fluoride"

Moscow, Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 32-34

Abstract: A study was made of the behavior in gaseous hydrogen fluoride of commercially pure nickel NP-2A and ultrapure nickel refined by the electron-beam method in vacuum. A specially designed apparatus was used for the experiments, consisting of two communicating nickel ovens connected with a chemical absorber. Experiments lasting up to 120 hours were carried out at 550° and an HF pressure of 20 atm. The results indicate that the corrosion resistance of the ultrapure nickel in gaseous HF is five times higher than that of nickel NP-2A. The electron-beam re-

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MOVCHAN, B. A., et al., Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 32-34

fined nickel snows no intercrystalline corrosion. Consequently, nickel refined by tne electron-beam method is recommended for the manufacture of nickel equipment. The electron-beam refining of nickel is also economically advantageous.

USSR

UDC 669.14.621.791.85

KURAPOV, YU. A., and MOVCHAN, B. A., Kiev

"Mechanism of Copper Removal in the Electron Beam Melting of Steel"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 70, pp 37-42

Abstract: The mechanism of copper removal in the electron beam melting of steel is studied. Armco-iron and grade-9Kh18 steel were melted. Variation in the surface area (S) and volume (V) of the molten pool of metal, evaporation of the base alloy (P), and copper content were plotted as functions of "washer" exposure time (τ). Three processes participate simultaneously in the removal of impurities from the liquid pool: surfacing of the impurities to the reaction surface characterized by the coefficient of mass transfer (β), evaporation of the impurities from the melt surface characterized by the theoretical constant of the rate of evaporation (K_p), and mass transfer to the space over the melt, which in vacuum melting is usually not a factor determining the rate of impurity removal. It was found that copper removal in the electron beam melting of steel is a first-order reaction, occurring in the transitory region. Also established was the fact that above 1550°C copper removal is limited by copper diffusion to the reaction surface, and below this temperature by the kinetics of copper evaporation from the melt surface.

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USSR UDC 539.216.2:669.24.26

MOVCHAN, B. A., USHAKOVA, S. Ye., FAT'YANOV, V. M., and TRONOV, L. P., Kiev, Kursk

"Investigation of the Structure and Some Properties of Ni-Cr Vacuum Condensates"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 56-59

Abstract: Electron-beam-remelted NP-2 nickel and ERKh galvanic chromium were vaporized from water-cooled copper crucibles with their vapors condensed on glass samples suspended 250 mm above the crucibles. The condensates were then tested for microhardness, bonding strength, and electrical resistance. Test results showed that the structure of the vacuum-deposited condensates corresponds to the Ni-Cr phase diagram; specific resistance depends on chemical composition, condensate thickness, and substrate temperature; microhardness varies in relation to chemical composition and substrate temperature; the condensates have good thermal stability of electrical resistance at a substrate temperature of 500°C; and the condensate has satisfactory adhesion with the glass substrate at a substrate temperature 350-500°C. It was noted that the thicker the condensate the less adhesion it has with the substrate, and as substrate temperature is increased the condensate

USSR

MOVCHAN, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 56-59

acquires better bondability and stability up to 500°C, after which the magnitudes of the properties begin to drop off. Two figures, 8 bibliographic references.

2/2

USSR UDC: 621.317.743

MOVCHAN, S. P., ZATENKO, N. A., and KONONENKO, K. I.

"Waveguide Gas Discharge Indicator of UHF Power Transmission"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 501-504.

Abstract: An experimental article describing a method for indicating microwave power based on the interaction of an electromagnetic field and a plasma gas discharge. By using an indicator in the form of a waveguide section hermetically sealed with mica or ceramic windows, the authors succeeded in avoiding the defects connected with the glass vessels used by earlier investigators. These defects are: additional reflection of uhf power from the glass; change of field structure in the waveguide strip; uhf power losses due to radiation in the gaps between the tube and openings in the waveguide wall; reduction in the limiting sensitivity of the gas discharge indicators due to uhf power losses in the glass envelope; the variation of the sensitivity with the a-

USSR

MOVCHAN, S. P., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 501-504.

Abstract:

symmetry of the glass vessel and its method of preparation. A drawing of the external view and block diagram of the equipment is given. Three indicators of this type, differing in the distance between anode and cathode (40, 50, and 60 mm) were tested. The results of these tests and their explanation are given. The dependence of the indicator sensitivity on the magnitude of the discharge current was found for a discharge current variation from 0.1 to 10.0 ma in traveling as well as standing wave modes. Optimal sensitivity was observed at current discharge values of 250-750 μa for several gases in a pressure interval of 1-10 mm Hg. The sensitivity of the indicator depends on the type of gas and the pressure. Gases tested were neon and argon.

USSR

UDC 669.715:548.4

BARANOV, A. A., MOVCHAN, V. F., and CHERNYSHEVA, I. A., Dnepropetrovsk

"Effect of Fusion on Volume Growth of Aluminum Alloys During Thermal Cycling"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 74, pp 164-168

Abstract: Alloys were prepared from aluminum grade AVO with semiconductor silicon (2.5 and 5 wt %) and electrolytic copper (4.5, 5.0, 6.0, 7.0, 7.5, and 9 wt %) for the purpose of studying grain boundary fusion during heating which lowers the properties of heat-resisting alloys. These alloys were subjected to thermal cycling which involved heating them from their eutectic temperature + 10° and cooling to room temperature or cooling them from the eutectic temperature to -40°C and heating to room temperature for a finite number of cycles. Heating the alloys to above the eutectic temperature causes grain-boundary fusion and the formation of gas pores and cracks, which in turn causes volume growth and reduced density. The amount of growth is a function of the copper and silicon content which increases with increased alloy content. It was observed that thermal cycling in a vacuum lowered density more than when cycling in air and that density drop was less when the alloys had been produced in a sand mold rather than a chill mold.
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BARANOV, A. A., et al Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 74, pp 164-168

O. V. LEBDEV, L. A. SHEVCHENKO, and V. V. YASHCHENKO, participated in these experiments. Three figures, 12 bibliographic references.

2/2

USSR

UDC 621.317:621.396

MOVCHAN, V. K.

"Measuring the Statistical Characteristics of a Radio Channel by Analyzing the Orthogonal Signal Component"

Radioelektronika v nar. kh-ve SSSR. Ch.1 -- V sb.(Radio Electronics in the National Economy of the USSR. Part I -- collection of works), Kuybyshev, 1970, pp 178-186 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract 4A315)

Translation: A study is made of the problem of statistical characteristics of communications channels and, in particular, shortwave channels. It is pointed out that the latter have a pulse transfer function with a series of sharply expressed maxima. The importance of conservation of information about the amplitude and phase relations of the beams for certain communications systems is noted. It is pointed out that for the given class of problems it is of interest to study the statistical characteristics of the fading orthogonal components of the complex transmission function of the channel. An experiment is performed to discover the cophasal and quadrature components of the indicated function of the shortwave channel. The experimental data and results are presented. In particular, by the samples of recordings of the indicated components it is established that they are correlated. The improved scheme used for the

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USSR

MOVCHAN, V. K., Radioelektronika v nar. kh-ve SSSR. Ch. I, Kuybyshev, 1970, pp 178-186

study can serve as a basis for creating an instrument for mass measurement of the investigated characteristics. There are 2 illustrations and a 5-entry bibliography.

2/2

USSR UDC: 532.517.4

MOVCHAN, V. T., VALETCHIK, L. A.

"Determination of Velocity Profiles in Axisymmetric Jets Striking a Screen on the Basis of Measurements of Characteristics of Turbulence"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collected Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1970, vyp. 6, pp 70-73 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B852)

Translation: It is assumed that turbulent tangential stress is expressed by the formula $\tau=\rho l\sqrt{e}\,du/dy$ (ρ is the density of the liquid, e is the time-averaged kinetic energy of turbulence, l is the length of the mixing path), $l=k_1 y$ and $e/e_0=Ay^{1/n}$ close to the wall, and $l=k_1\delta$ and $e=e_0(x)$ in the jet part of thickness b. The authors then present the profiles of the tangential stresses in the wall and jet parts in the form of polynomials, and derive expressions for the velocity profiles in the jet near the wall. From measurements of the characteristics of turbulence in a radial jet near the wall, they find $A=1.05$, $n=10$. A. S. Ginevskiy.

1/1

USSR UDC: 532.516.2

MUKHITARYAN, A. M., MOVCHAN, V. T., PEREVERZEV, A. M.

"A Semibounded Turbulent Jet on a Thin Axisymmetric Body"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collected Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1970, vyp. 6, pp 3-8 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B704)

Translation: A method is outlined for calculating the velocity profiles in the main section of an axisymmetric semibounded jet. For this purpose, the authors use the Kolmogorov-Prandtl formula which establishes a relationship between turbulent tangential stress, the kinetic energy of turbulence, and the gradient of the averaged velocity. In calculating the velocities in the part of the jet near the wall, the distribution of turbulent energy is approximated by a first-degree polynomial, while the tangential stress is approximated by a third-degree polynomial of the transverse coordinate. In the external (jet) part, the turbulent energy is assumed to be independent of the transverse coordinate, and a third--degree polynomial is substituted for the tangential stress profile. The coefficients of the polynomials are determined from the boundary conditions on the wall, on the line of maximum velocities and on the outer boundary

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202120009-3"

MUKHITARYAN, A. M. et al., Sb. nauchn. tr. Kiyev. in-t inzh. grazhd. aviatsii, 1970, vyp. 6, pp 3-8

of the jet. For a special case (boundary layer on a flat plate with zero pressure gradients), the theoretical profile of the velocity defect is compared with the experimental data of Freeman, Kolebanov and Deal, Schultz-Grunov. Some considerations are given on the development of such jets along a body. A. V. Kolesnikov.

2/2

USSR

UDC 582.264.45

OVSYANNIKOVA, M. N., and MOYSES'YAN, E. V., Institute of General Genetics, Academy of Sciences USSR, Moscow

"The Effect on Chlorella of Some Antibiotics Used for Purification of Monocellular Algae Cultures"

Moscow, Genetika, Vol 6, No 9, Sep 70, pp 61-66

Abstract: The mutagenic effect of eight antibiotics on Chlorella was investigated. All of the antibiotics markedly limited the growth and development of Chlorella cells and lowered their survival; the effects decreased in the following order: nystatin > penicillin > tetramycin > levomycetin > erythromycin > phenoxymethyl-penicillin > aureomycin > tetracycline. In the concentration range from 200 to 1,000 gamma/ml, all of the antibiotics were mutagenic. The spectrum of visible mutations resulting from the action of the antibiotics resembled the situation observed during spontaneous mutation. No clear correlation was noted between the chemical properties and the mutagenic effect of the antibiotics. To be effective, the antibiotics should generally be added to a liquid growth medium. The antibacterial activity of individual antibiotics, their chemical properties, and their genetic action must be considered in selecting proper agents for production of bacteriologically pure cultures of algae.
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USSR

UDC 6.12.1/8.173.1;612.1/8-014.426

MOVSESYAN, M. A., ZAKHARYAN, A. B., SARUKHANOV, A. G., BARKHUDARYAN, L., and [redacted], Yerevan Physics Institue, Ministry of Health Armenian SSR

"Effect of a Permanent Magnetic Field on the Rat Myocardium Content of Na, K, Ca, and Glycogen in the Process of Acclimatization to the High Mountain Conditions of Aragats"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 2, Feb 71, pp 95-97

Translation: Considerable importance has been attached during the past few years to investigation of the effects of a magnetic field on the human and animal organisms. This is explained first by the fact that the intensity of magnetic fields utilized in industry and scientific research has been considerably magnified, and second -- by the fact that a connection has been established between the increase in the frequency of sudden deaths caused by cardiovascular failure and the formation of solar magnetic storms. At present the intensity of the permanent and temporary fields in free play attains a magnitude of 100,000 oersted, while impulsive magnetic structures can create a magnetic field with an intensity of up to 2,500,000 oersted.

Data obtained in investigations of the effect of a permanent magnetic field on the electrolyte (Na, K, Ca) and glyogen and content in the myocardium

USSR

MOVSESYAN, M. A., et al., Biologicheskiy Zhurnal Armenii, Vol 24, No 2, Feb 71, pp 95-97

of rats during the process of acclimatization to high altitude conditions are cited in this report.

The investigations were carried out on 166 white nontred rats 150-200 grams in weight transferred from Yerevan (900 meters above sea level) to Mount Aragats (3,250 meters above sea level).

At different periods of their habitation on the high mountain (24, hours, 7 and 40 days) a part of the rats were placed in a magnetic field with a magnitude of 7,800 oersted where they were kept for two hours. Together with the controls (rats not placed in the magnetic field) they were then sacrificed for the purpose of determining the myocardium content of the indexes mentioned. The electrolyte content was determined with the help of a DPF-58 type of flame photometer and expressed in milliequivalents per liter; the glycogen content was determined by the Mendel-Khuglas method.

The same indexes were studied in intact rats under Yerevan conditions. A comparison of the data obtained in the investigation of the intact rats under Yerevan conditions with the data obtained at different periods of habitation of the rats at the high altitude enabled us to arrive at a representation of the changes which take place in the myocardium content of Na, K, Ca, and

USSR

MOVSESYAN, H. A., et al., Biologicheskiy Zhurnal Armenii, Vol 24, No 2, Feb 71, pp 95-97

glycogen during the process of acclimatization. At the same time the data obtained in the study of these two groups served as a control for study of the influence of the magnetic field.

The results of the above-described investigations are presented in the table.

It is obvious from the data obtained that during the process of acclimatization changes in the rat myocardium content of Na, K, Ca, and glycogen take place.

In the course of the 40-day habitation of the rats on Mount Aragats the myocardium content of glycogen gradually diminished, with the largest diminution noted on the seventh day. In the same animals the myocardium content of Ca gradually and only slightly increased, while changes in the quantity of Na and K were wave-like in character: the heart tissue's content of Na and K increased within 24 hours, decreased by the seventh day, and again increased by the 40th day.

It was found that placing the animals in a magnetic field for two hours affects the course of the indicated changes, particularly if the rats are placed in the magnetic field on the first day of their transfer from Yerevan to Mount Aragats. For instance, it was noted that when rats 22 hours after

3/6

USSR

MOVSESYAN, M. A., et al., Biologicheskiy Zhurnal Armenii, Vol 24, No 2, Feb 71, pp 95-97

their arrival on Mount Aragats were placed and kept for a period of 2 hours in a magnetic field and then sacrificed to determine the myocardium content of Na, K, Ca, and glycogen, the results obtained differed from the results obtained in investigation of the intact animals.

Differing from the intact animals, no wave-like changes in the content of Na, K, and Ca occur in the experimental rats. Under the influence of the magnetic field the heart muscle's content of Na and K is considerably diminished. In the same animals the effect of the magnetic field tends to induce a still greater decrease of the myocardium content of glycogen. When the rats, however, were placed in the magnetic field on the 7th and 40th days on Mount Aragats no particular changes were noted.

Thus the animals were found to be most sensitive to the influence of a magnetic field when they had not become adapted to high altitude conditions. As adaptation progresses the sensitivity of the organism to the influence of the magnetic field decreases.

4/6

Myocardium Content of Sodium, Potassium, Calcium, and Glygogen Table 1

Place where animals were kept	Period of time at high altitudes	Manipulation	Sodium			Potassium		
			M ± m	*P_1	*P_2	M ± m	*P_1	*P_2
Yerevan	——	Intact	33.6±1.5	——	——	67.6±2.0	——	——
Aragats	24 Hours	Intact	43.3±1.8	0.001	——	78.4±1.5	0.05	
		Under influence of magnetic field	27.7±0.5	0.05	0.001	54.5±3.3	0.01	0.001
	7 Days	Intact	28.0±0.3	0.01		61.7±2.1	0.1	
		Under influence of magnetic field	26.6±1.9	0.01	0.5	65.3±1.6	0.5	0.5
	40 Days	Intact	39.7±1.0	0.01		74.3±1.5	0.05	
		Under influence of magnetic field	36.6±0.9	0.5	0.05	73.5±1.7	0.05	0.5

5/6

(Table continued below)

(Table continued from above)

Place where animals were kept	Period of time at high altitudes	Manipulation	Calcium			Glycogen		
			M ± m	*P_1	*P_2	M ± m	*P_1	*P_2
Yerevan	——	Intact	3.3±0.04	——	——	690.0±19.0		
Aragats	24 Hours	Intact	3.8±0.05	0.01		510.0±71.0	0.05	
		Under influence of magnetic field	3.3±0.15	0.5	0.05	258.0±17.7	0.02	0.01
	7 Days	Intact	3.2±0.10	0.5		220.0±20.0	0.001	——
		Under influence of magnetic field	3.7±0.17	0.05		250.0±17.7	0.01	0.2
	40 Days	Intact	3.9±0.08	0.01		305.0±11.6	0.01	——
		Under influence of magnetic field	4.0±20.1	0.001	0.05	260.0±35.6	0.001	0.5

*R_1 -- Reliability coefficient of the difference in comparison with data [m] and data obtained in rats under Yerevan conditions

*R_2 -- Reliability coefficient of the difference in data obtained under Aragats conditions, under the influence of a magnetic field, and without it.

6/6

AA0040708 Moulyan, G.A. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

236222 POINT MICRO-WELDER contains a cylinder 1 with a wire 4, and a clamping device 8. In order to reduce the possibility of ruptures of wire by eliminating the dynamic loads, which appear in the beginning of the unwinding of wire from the cylinder and in the process of it, the clamping device has a rack 7 which interacts with the friction cylinder 3. The friction cylinder is fixed on the same axis as the cylinder, and is prevented from turning backwards by a ratchet 2. The diameter of the cylinder is equal to the diameter of the friction cylinder. 29.5.67. as 1159581/25-7. V.M.MAKEDONSKII et alia. E.O.Paton electrowelding Inst. (16.6.69.) Bul.6/ 24.1.69. Class 49h. Int.Cl. B.3k.

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AUTHORS: Makedonskiy, V. M.; Movlyan, G. A.; and Moyseyenko, Ye. G

Institut Elektrosvarki imeni Ye. O. Patona

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USSR

UDC: 539.374

IL'YUSHIN, A. A., Corresponding Member of the USSR Acadamy of Sciences; MOVLYANKULOV, Kh.; SUNCHALIYEV, R. M.; and FILATOV, A. N.

"Some Methods for Investigating Nonlinear Problems in Viscous-Elasticity Theory"

Doklady Akademii Nauk SSSR, vol 206, No 1, 1972, pp 59-61

Abstract: The authors find a simplified form of the general equations for the nonlinear theory of viscous-elasticity by eliminating the inertial term, thus obtaining an equation which describes quasi-static problems of the theory. They consider that this simplified form is reduced to a system of ordinary integrodifferential equations by the straight-line or Bubnov-Galerkin methods and show how these equations can be averaged for solving dynamic problems in nonlinear viscous-elasticity theory. They show also how the "freezing" method can be used to investigate integral equations which arise in quasi-static problems of the theory. They are associated with the Cybernetics Institute and Computer Center, Uzbek Academy of Sciences, at Tashkent.
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USSR

UDC 539.376+532.135

MOVLYANKULOV, Kh.

"Method of Averaging in the Theory of Quasistatic Problems of Viscoelasticity"

V sb. Vopr. vychisl. i prikl. mat. Vyp. 10 (Problems in Computer and Applied Mathematics. No. 10 -- Collection of Works), Tashkent, 1972, pp 44-48 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8V424)

Translation: The Volterra integral equation

$$x(t)=f(t)+\varepsilon\int_0^t R(t,s)\,x(s)\,ds \qquad (1) \qquad (1)$$

is considered to which an integral-operator equation corresponding to the viscoelastic boundary value problem is reduced after application of the Bubnov-Galerkin method or the straight-line method in terms of spatial coordinates. An approximate solution of equation (1) is obtained in the form

$$x(t)\approx f(t)+\frac{\varepsilon}{1-\varepsilon\int_0^t R(t,s)\,ds}\int_0^t R(t,s)\,f(s)\,ds$$

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MOVLYANKULOV, Kh., Vopr. vychisl. i prikl. mat. Vyp. 10, Tashkent, 1972, pp 44-48

and also given is the averaged equation $\dot{\xi} = \varepsilon(A\xi + B)$, $\xi(0) = W(0)$, corresponding to equation (1). Here

$$A = \lim_{T\to\infty} \frac{1}{T} \int_0^T \left[R(t, t) + \int_0^\infty \frac{\partial R(t, s)}{\partial t} ds \right] dt$$

$$B = \lim_{T\to\infty} \frac{K(T)}{T}, \quad W(t) = x(t) - f(t)$$

$$K(t) = \int_0^t R(t, s) f(s)\, ds$$

The problem of the stability of a viscoelastic orthotropic rectangular plate supported on the edges and having an initial sag is considered as an illustration. 5 ref. M. I. Rozovskiy.

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Acc. Nr: AP0038025 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Éksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 37-44

SOME NONLINEAR OPTICAL EFFECTS IN POTASSIUM VAPOUR

Arutyunyan, V. M.; Badalyan, N. N.; Iradyan, V. A.; Movsesyan, M. Ye.

Some nonlinear effects (dependence of group velocity on intensity, phase modulation, pulse shape distortion, appearance of combined lines due to multiphoton interaction processes) are investigated theoretically near the $4P_{3/2} - 4S_{1/2}$ resonance of the potassium atom. Broadening of the spectral line of the second Stokes component of chloroform stimulated Raman scattering is observed on passage through a cell containing potassium at a saturated vapour pressure of 0.05—1.7 mm Hg. Under the same experimental conditions three-photon and five-photon scattering was observed.

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USSR

UDC 528.024.6:528.5

LAVRENT'YEV, I. V., MOVSESYAN, R. A., TAPLASHVILI, I. A., KHESED, Ye. A.

"The SGN-27D System for Hydrostatic Leveling"

Moscow, Geodeziya i Kartografiya, No 11, Nov 72, pp 23-28.

Abstract: The SGN-27D system is designed for high frequency hydrostatic leveling with remote determination of the position of the fluid level in connected vessels. It differs from other similar systems in its switching method in selecting sensors and in that it contains an internal pulse counter in the control unit, which makes it more convenient to use. In order to expand the area of application of hydrostatic leveling, a number of problems remain yet to be solved, one of which is consideration of temperature influences. Here, in the opinion of the author s, the two-fluid method should be used, developing devices with wide ranges of measurement of fluid level. Finally, all measurements must be performed automatically under program control. This will allow the most convenient hours to be used for measurement, for example the night hours. These problems are being studied at the Yerevan Polytechnical Institute imeni K. Marx and other organizations, and it is hoped that the method of hydrostatic leveling will become widely used in the near future.
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USSR

UDC 528.517:535.8

DIANOVA, V. A., MOVSESYAN, R. A., PARYGIN, V. N., and PAPYAN, V. A.

"Modulation of the Helium-Neon Laser Emission With the Help of Lithium Niobate Crystals"

Moscow, Geodeziya i Kartografiya, No 1, Jan 72, pp 32—36

Abstract : Experiments conducted with new electro-optical materials, lithium niobate ($LiNbO_3$) crystals, at the Yerivan Polytechnic Institute imeni K. Marx, are described. The results are discussed by reference to experimental and calculated modulation depth - modulating power curves of $LiNbO_3$, shown in comparison with KDP curves. It was found that the use of $LiNbO_3$ crystals instead of KDP crystals in the capacity of electro-optical element in a photometric range finder with a modulator of toroidal type possesses advantages over ADP and KDP crystals, including: 1) the required power to obtain the same efficiency of the modulator decreases by 2—2.5 times; 2) the size of the modulator can be reduced by $\sim$4 times; 3) the $LiNbO_3$ crystals are not hygroscopic and are much stronger than KDP crystals; 4) thermal effects have not been observed in modulators with $LiNbO_3$ crystal at the average power of 6 w. Three illustr., six biblio. refs.

USSR

UDC 03-104

MOVSESYAN, S. N., GALUKYAN, M. G., and OGANESYAN, R. A., Yerevan State University

"Preliminary Data on the Mutagenic Effect of Some New Chemical Compounds"

Yerevan, Biologicheskiy Zhurnal Armenii, No 5, 1973, pp 39-44

Abstract: Laboratory and field experiments with Rudbeckia speciosa and Rudbeckia triloba treated with ethylenimine, its derivative preparation 496, and a nitrogen mustard derivative preparation 190 revealed that the new compounds have the same mutagenic effects as ethylenimine: lagging of individual chromosomes, incompleteness of the chromosome set at the poles, and formation of micronuclei in the dyads and tetrads. In the meta- and anaphases, some of the chromosomes did not form at the equator or poles but remained apart from the division figure. And they continued to remain in the cytoplasm in the telophase. These lagging chromosomes formed in the micronuclei (from 1 to 3 or more in a microspore) and persisted for a long time. They were present in the later stages when young mononuclear pollen grains formed. No correlation was observed between the concentration of the chemical compounds and their mutagenic effect.

USSR UDC 591.1.15

MOVSEYAN, M. A., BARKHUDARYAN, L. Kh., ARUTYUNYAN, D. Ye., and MELIK-MKRTCHYAN, L. N.

"Glycogen Concentration Changes in the Heart Muscle of Irradiated Rats"

V sb. Materialy 3 Zakavkaz. nauch. konf. patofiziologov, 1972 (Collection of Papers Presented at Third Transcaucasian Scientific Conference of Pathophysiologists, 1972), Tbilisi, 1972, pp 151-152 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 2, 1973, Abstract No 2F1335 by V. M. Podval'naya)

Translation: Comparatively small doses of ionizing radiation cause a stress reaction, along with its specific effect. When radiation sickness is very light or light, the glycogen concentration in the heart muscle is the protective reaction of the animal organism and constitutes a part of the general adaptation syndrome. Adrenergic structures in the hypothalamus hypophysis-adrenal cortex system represent the necessary link without which the activation of this system is impossible.

1/1

Instruments and Equipment

USSR

UDC 615.471:612.886-088.7

VLASOV, A. I., LEBEDEV, I. G., STRELETSKAYA, R. A., and MOSEYEV, S. N., Clinic of Ear, Nose and Throat Diseases, Izhevsk Medical Institute

"An Electrically Powered Rotating Chair for Recording Some Motor and Automatic Responses of the Vestibular Analysor"

Moscow, Vestnik Otorinolaringologii, No 6, 1972, pp 75-77

Abstract: A Baranyi chair is connected to a 3-phase 2-speed a.c. electric motor (120 v, 3000 and 1500 rpm) with a reducer to permit the chair to rotate at 30 and 15 rpm and correspondingly slower acceleration and deceleration. Four switches are used to change the direction and rate of rotation. A set of silvered rotating contact rings is used as a collector ring along with silvered contact clips to reduce the distortion of the signals. On the back of the chair is a terminal block with cells for the electrodes and a graduated arc to determine the deviation. The apparatus can be used for continuous, simultaneous recording of up to 20 different somatic and autonomic reactions, including spontaneous and induced nystagmus in the vertical and horizontal planes, position and optokinetic nystagmus along with the pulse, EEG, EKG, and respiration. Schematics and a photograph of the chair are included.

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USSR

UDC 678.762.3-134.535.002.612

DEVIRTS, E. YA., IZMAYLOVA, L. V., and MOYSEYEV, V. V.

"Properties of an Isoprene-Nitrile Copolymer"

Moscow, Kauchuk i Rezina, No 12, 1972, pp 22-23

Abstract: A copolymer of isoprene and acrylonitrile (copolymer-30) is compared with another copolymer (copolymer-26m). Copolymer-30 has much less stability than copolymer-26m toward rolling at high temperatures, though at lower temperatures their stability is similar. An essential advantage of mixtures based on copolymer-30 over copolymer-26m is in the higher adhesion. The rates of vulcanization of both are similar unfilled rubber from copolymer-30 has high tensile strength and is comparable to unfilled from isoprene rubber.

Untreated rubber from copolymer-30 has a very low heat resistance, making it comparable to copolymer-26m. At room temperature the elasticity of copolymer-30 is much lower than that of copolymer-26m, at higher temperatures up to 100°C. elasticity is comparable. Noteworthy is the higher resistance to thermal aging found in untreated rubber from copolymer-30.

The elasticity of carbon black rubber from copolymer-30, is much lower than that of corresponding rubber from copolymer-26m, but when heated to 100° C

1/2

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DEVIRTS, E. YA., et al., Kauchuk i Rezina, No 12, 1972, pp 22-23

the elasticity of both is about the same. But heat resistance and resistance to thermal aging is much higher in carbon-black rubber from copolmer-30. There is also less swelling in a gasoline-benzene system(3:1). In other properties, such as tensile strength and residual deformation during pressing, the carbon-black rubbers from copolymers 30 and 26m are very similar.

Isoprene-nitrile rubbers use the same type of vulcanizing systems as do butadiene-nitrile rubbers. Also, the carbon black and the light fillers used for butadiene-nitrile rubbers can be used for copolymer-30 mixtures.

With rubber from copolymer-30 there is a significant strengthening in the presence of light, inactive fillers, surpassing copolymer 26m in such properties as resistance to tearing, relative and residual lengthening. Use of common plasticizers can increase cold resistance and elasticity in co-polymer-30 mixtures, but this increase does not reach the values of plasticizer treated copolymer-26m.

The primary use of copolymer-30 will be in preparing glue and rubber mixtures of high adhesion. It can also be used for rubber manufactured articles having no need for high resistance to cold.

2/2

MEDICINE

Burn Studies

USSR UDC 616.5-001.17-07:616.5-008.939.6-074

MOVSHEV, B. Ye., Central Scientific Research Laboratory, Moscow Medical Stomatological Institute

"Fractionation of Proteins of Normal and Burned Skin by Gel Filtration:

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 37-40

Abstract: Water-soluble proteins from burned and normal skin of rats were separated into at least 8 fractions and subfractions by gel filtration on various Sephadexes (G-200, G-150 superfine, G-50, and G-15). The release of protein from burned skin and from intact skin elsewhere on the body of burned animals was substantially greater than in the controls. This was caused both by the intensified permeability of the skin blood vessels to serum proteins and to the transformation of the skin proteins that made them more soluble. The chief advantage of gel filtration as a method of fractionating complex protein mixtures

1/2

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MOVSHEV, B. Ye., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 37-40

is that it can separate even highly labile proteins, which can then be analyzed for immunological specificity. In addition, it does not alter the native properties of the proteins.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--MEASUREMENT OF THE SPECTRAL SENSITIVITY OF PHOTOFILMS UF-2T, UF-R, AND SC-5 IN THE 1.5-23.6 ANGSTROM REGION -U-

AUTHOR--MOVSHEV, V.G., RYABTSEV, A.N., SUKHODREV, N.K.

M

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER EXPOSURE (5 SEC-1 HR) THE FILMS WERE DEVELOPED IN THE D-19 DEVELOPER AT 20DEGREES, WITH DEVELOPMENT TIME 2 MIN FOR SC-5, 6 MIN FOR UF-R, AND 8 MIN FOR UF-2T. PHOTOMETRIC MEASUREMENTS WERE MADE ON THE MICROPHOTOMETER MF-2. THE CHARACTERISTIC CURVE OF THE FILM SC-5 REMAINS PRACTICALLY UNCHANGED WITHIN THE SPECTRAL REGION STUDIED. A SMALL DECREASE IN THE CONTRAST COEFF. WAS OBSD. FOR UF-R AND UF-2T FILMS IN THE LONG WAVELENGTH REGION. THE WAVELENGTH DEPENDENCE CURVES SHOW THAT THE SENSITIVITY OF UF-2T IN THE 5.4-13.3 ANGSTROM REGION AND OF UF-R IN THE 5.4-8.3 ANGSTROM REGION IS CONST., THEN DECREASES WITH WAVELENGTH UP TO LAMBDA 21.7 ANGSTROM. A SLIGHT INCREASE IN THE SENSITIVITY WAS OBSD. AT LAMBDA 21.7 ANGSTROM. IN THE 1.5-24 ANGSTROM REGION, SC-5 HAS THE HIGHEST SENSITIVITY. MEASUREMENTS OF THE ABSORPTION COEFFS. OF GELATIN AND AGBR IN THE 1.5-23.6 ANGSTROM REGION REVEALED THAT AT LAMBDA 10-24 ANGSTROM, THE SENSITIVITY OF THE FILMS FOLLOWS THE ABSORPTION OF THE GELATIN LAYER AND INCREASES WITH DECREASING THICKNESS OF THE LAYER. IN THE 5-10 ANGSTROM REGION, THE ABSORPTION OF THE GELATIN LAYER IS NEGLIGIBLE AND THE SENSITIVITY OF THE FILMS INCREASES WITH INCREASING DIAM. OF AGBR GRAINS.

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